

Claim Listing This listing of claims will replace all prior versions and listings of claims in the application:

1. (previously presented) A DNA expression construct comprising a nucleic acid sequence which encodes a mutant Δ^9 -18:0-ACP desaturase having one or more amino acid substitutions selected from the group consisting of:

- a) Ala, Thr, Ser, or Ile for Met 114 of SEQ ID NO: 1;
- b) Arg for Thr 117 of SEQ ID NO: 1;
- c) Gly, Ala or Cys for Leu 118 of SEQ ID NO: 1;
- d) Val or Leu for Pro 179 of SEQ ID NO: 1;
- 10 e) Val, Ser, Phe or Trp for Thr 181 of SEQ ID NO: 1;
and
- f) Leu or Thr for Gly 188 of SEQ ID NO: 1.

2. (previously presented) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes each of the following amino acid substitutions:

- a) Ala for Met 114 of SEQ ID NO: 1;
- b) Arg for Thr 117 of SEQ ID NO: 1;
- c) Gly for Leu 118 of SEQ ID NO: 1;
- d) Val for Pro 179 of SEQ ID NO: 1;

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- e) Val for Thr 181 of SEQ ID NO: 1; and
- f) Leu for Gly 188 of SEQ ID NO: 1.

3. (previously presented) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes each of the following amino acid substitutions:

- a) Thr for Met 114 of SEQ ID NO: 1;
- b) Arg for Thr 117 of SEQ ID NO: 1;
- c) Ala for Leu 118 of SEQ ID NO: 1;
- d) Leu for Pro 179 of SEQ ID NO: 1;
- e) Ser for Thr 181 of SEQ ID NO: 1; and
- f) Leu for Gly 188 of SEQ ID NO: 1.

4. (previously presented) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes each of the following amino acid substitutions:

- a) Ser for Met 114 of SEQ ID NO: 1;
- b) Arg for Thr 117 of SEQ ID NO: 1;
- c) Cys for Leu 118 of SEQ ID NO: 1;
- d) Leu for Pro 179 of SEQ ID NO: 1; and
- e) Thr for Gly 188 of SEQ ID NO: 1.

5. (previously presented) The DNA expression construct of Claim 1 in which the nucleic acid sequence

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encodes the amino acid substitutions Arg for Thr 117 and Leu for Gly 188, each of SEQ ID NO: 1.

6. (previously presented) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitution Arg for Thr 117 of SEQ ID NO: 1.

7. (previously presented) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitution Phe for Thr 181 of SEQ ID NO: 1.

8. (previously presented) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitution Trp for Thr 181 of SEQ ID NO: 1.

9. (previously presented) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitutions Ile for Met 114 and Leu for Gly 188 of SEQ ID NO: 1.

10. (original) The DNA expression construct of any one of Claims 1, 2, 3, 4, 5, 6, 7, 8, or 9 wherein the nucleic acid sequence is selected from the Δ^9 -18:0-ACP desaturase sequences from a member of the group consisting

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castor, brassica, sunflower, yellow lupine, cotton,
coriander, maize, sesame, rice, flax, safflower, avocado
and cucumber.

11. - 17. (cancelled)

18. - 53. (cancelled)

54. (previously presented) A DNA expression
construct comprising a nucleic acid sequence which encodes
a mutant Δ^9 -18:0-ACP desaturase selected from the group
consisting of

a. a mutant having each of the following amino acid
substitutions: Ala for Met 114; Arg for Thr 117; Gly for
Leu 118; Val for Pro 179; Val for Thr 181 and Leu for Gly
188, all of SEQ ID NO: 1;

b. a mutant having each of the following amino acid
10 substitutions: Thr for Met 114; Arg for Thr 117; Ala for
Leu 118; Leu for Pro 179; Ser for Thr 181 and Leu for Gly
188, all of SEQ ID NO: 1;

c. a mutant having each of the following amino acid
substitutions: Ser for Met 114; Arg for Thr 117; Cys for
Leu 118; Leu for Pro 179; and Thr for Gly 188, all of SEQ
ID NO: 1;

d. a mutant in which Arg is substituted for Thr 117 and Leu for Gly 188, each of SEQ ID NO: 1;

20 e. a mutant in which Ile is substituted for Met 114 and Leu is substituted for Gly 188, each of SEQ ID NO: 1;

f. a mutant in which Arg is substituted for Thr 117 of SEQ ID NO: 1;

g. a mutant in which Phe is substituted for Thr 181 of SEQ ID NO: 1; and

h. a mutant in which Trp is substituted for Thr 181 of SEQ ID NO: 1.

55. (previously presented) The DNA expression construct of Claim 54 wherein the nucleic acid sequence is selected from the Δ^9 -18:0-ACP desaturase sequence from a member of the group consisting of castor, brassica, sunflower, yellow lupine, cotton, coriander, maize, sesame, rice, flax, safflower, avocado and cucumber.

56. (previously presented) A cell transformed with a DNA expression construct selected from the group consisting of the DNA expression constructs of Claim 54.

57. (previously presented) The cell of Claim 56 which is a prokaryotic cell.

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58. (previously presented) The cell of Claim 56
which is an eukaryotic cell.

59. (previously presented) The cell of Claim 58
which is a plant cell.

60. (previously presented) A transgenic plant
expressing a DNA construct selected from the group
consisting of the DNA constructs of Claim 54.

61. (previously presented) The transgenic plant of
Claim 60 which is *Arabidopsis thaliana*.

62. (previously presented) The transgenic plant of
Claim 61 which is selected from the group consisting of
castor, brassica, sunflower, yellow lupine, cotton,
coriander, maize, sesame, rice, flax, safflower, avocado
and cucumber.